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AUTHOR Levine, S. Joseph
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ABSTRACT

Tape cartridges for use by special education teachers are analyzed according to design, effective use, and availability. Basic operating principles of cassette and continuous loop tape cartridges are described and illustrated. Advantages of tape cartridges are indicated, such as the following: the position is saved on tape during student timeouts, and handicapped students easily learn difficult concepts or involved sequential instructions. Other attractive features cited are low maintenance, low cost, storage considerations, size, and portability. Two playback only machines recommended are the Play Tape and the General Electric Tape Player (#G3700). Also mentioned is the PlayTape custom laboratory (address supplied) which produces tapes from teacher reel recordings. Additionally included is a list of cartridge players and recorders giving manufacturer, address, model, size, price, and features. (MC)

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EDUCATIONAL USES OF CARTRIDGE TAPES

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EDUCATIONAL USES OF CARTRIDGE TAPES

By S. Joseph Levine
Coordinator of Teaching Media
Development & Evaluation

USOE/MSU Regional Instructional Materials Center for Handicapped Children & Youth

213 Erickson Hall
College of Education
Michigan State University
East Lansing, Michigan 48823

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EDUCATIONAL USES OF CARTRIDGE TAPES

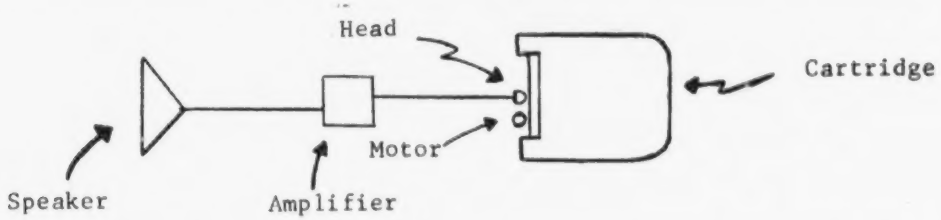
BY

S. Joseph Levine

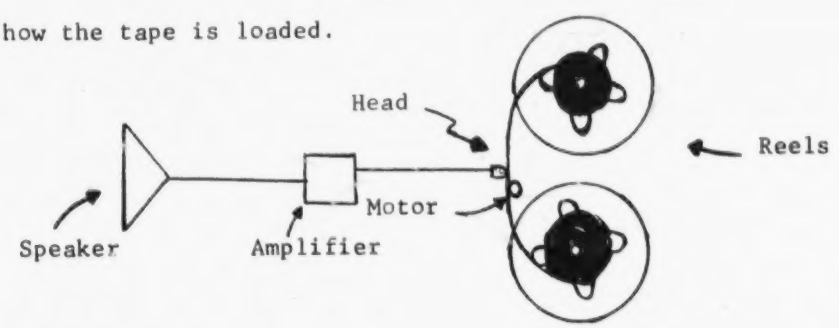
Tape cartridges are becoming increasingly popular as a mode of information storage and retrieval. First used exclusively by radio stations, they eventually moved to the automobile. They finally moved into the home as a part of the hi-fi set, and most recently have been designed specifically for classroom use in education. Simplified operational characteristics make them a "sure bet" for continued use in education. This paper is written to acquaint the classroom teacher with the benefit of cartridge tapes: their design, effective usage, and presently available units.

How Does It Work?

A cartridge tape is an enclosed plastic "box" with a window that exposes a small portion of recording tape. The cartridge is inserted in the player causing the exposed tape to come in contact with the playback head. At the same time a motor which drives the tape across this head is engaged, thereby sending the recorded sounds through an amplifier and out to the speaker or earphones.



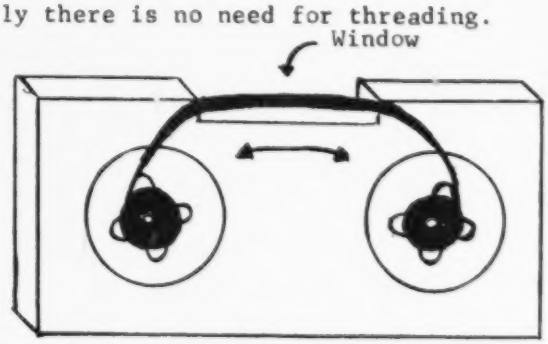
Electronic operation is identical to the standard reel-type machine. The difference is how the tape is loaded.



There are two primary types of tape cartridges. One is an enclosed reel-to-reel type (cassette), the other a continuous loop variety. Both are enclosed in a box with the small portion of tape exposed at the window.

The CASSETTE CARTRIDGE

The reel-to-reel cassette cartridge functions in the same manner as the reels on a standard tape recorder. There is a "supply" reel and a "take-up" reel with the tape moving from one to the other when operated. Unlike the standard machine, the cassette reels are sealed in the plastic box and can be loaded, used, removed, and stored as a complete unit. The tape is permanently attached to the reels. It will not come off; consequently there is no need for threading.



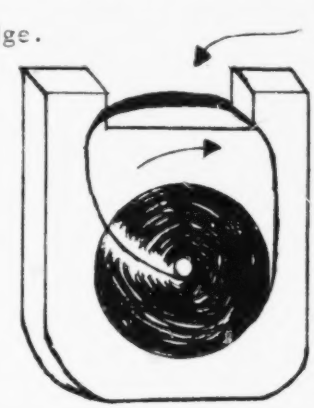
Cassette Cartridge
(Interior view)

The controls on the cassette cartridge player are of the standard type, usually consisting of Volume, Play, Reverse, and Fast Forward. When the tape gets to the end of the reel the machine automatically stops. The cassette cartridge can then be removed, turned over, and reinserted to hear a second recorded program.

Cassette cartridges come in a variety of playing times, the most popular being the 60 and 90 minute units. They are reasonably indestructible and can withstand considerable abuse.

The CONTINUOUS-LOOP CARTRIDGE

The continuous-loop cartridge consists of a long loop of tape wound in a concentric spiral. When operated, the tape is continually pulled from the center of the spiral and then returned to the outer edge.



Continuous-Loop Cartridge
(Interior vies)

The tape can only be moved in one direction - forward. In a recorded program that has been properly paced, the student operates the controls only twice. He starts it at the beginning and stops it at the end. No other operations are necessary. To return to the beginning of the program, the tape is played through to the end.

Most continuous-loop cartridges utilize a small piece of aluminum foil attached to the tape as a "marker". When the "marker" appears in the window the machine signals the user that the program is now ready to begin again. On some machines this "marker" will automatically stop the machine, and on others it will automatically switch to the next program track.

The program time available on continuous-loop cartridges varies according to the type of cartridge used. An "8 Track" cartridge contains four 7 ½ minute segments, with a total playing time of 30 minutes. The PlayTape cartridge, a miniaturized version of the "8 Track", contains from 5 to 12 minutes on each of two tracks. (Total playing time of 10 to 24 minutes.)

The continuous-loop cartridge, like the cassette cartridge, has a molded plastic case which will withstand rough usage.

A Variety of Uses

When the cartridge is removed from the tape player, your position on the tape is saved; there is no need to "hunt" for the right spot when you return to listen to more of the program. Merely re-insert the cartridge in the player and you are continuing where you left off.

For example: *Blind students listening to spoken programs can easily take a "break" at any point in the program and be assured of finding the correct place when they return, even if the machine itself has been used by another student in the meanwhile.*

When a student finishes listening to a program the recorded material is ready to go for the next student. No rewinding is necessary.

Short recorded loops can provide speech-handicapped students with models of particularly difficult speech patterns or segments.

Slow learners or retarded children can learn new concepts by listening to the material played many times. There is no necessity to stop and back up the program at the end of each playing.

If the student wants to stop the tape to take notes, make appropriate verbal responses, or carry out instructions, it is easy enough. In some machines, he pulls the cartridge from the player, in others he pushes a "stop" button. Machines of the first sort are especially useful for severely handicapped children or very young children since they do not require turning dials or pushing buttons. In these machines a child starts the tape by inserting it, he stops it by removing it.

New vocabulary words can be underlined in the text of a story. As the student reads an underlined word he can insert the cartridge to hear the definition.

Curricular areas calling for detailed instructions (chemistry lab, wood shop, etc.) can have instructions recorded in short segments. The student removes the cartridge after each segment and carries out the appropriate task as instructed on the tape.

Cartridges can be used freely by the student with a minimum of instruction or monitoring by the teacher. If the student has free time, he can select the appropriate cartridge (identifying labels are provided), inserts it in the player, and he's listening to the program. Actual loading is practically foolproof and is accomplished in a few seconds.

Physically handicapped students or those with motor-coordination problems can make effective use of the machine independent of the teacher.

A sound library can be built around a particular subject area and then made available to the students as supplementary material. Students can check out cartridges as they would a book.

Structured reading can be carried out on an individual basis by having the story pre-recorded. The student listens as he reads.

Arithmetic or spelling drills can be recorded and used by the student to improve proficiency. Other exercises can stress verbal comprehension or selective listening.

Cartridges are easily stored and retrieved in the classroom. They are small enough to be kept in a desk or conveniently stacked on a shelf. Labels on each cartridge provide immediate identification of the program material.

Students enrolled in business courses can listen to recorded job interviews, dictation exercises, and typing drills.

The life of cartridges is greatly extended beyond that of regular reels of tape. The case prevents dust and inquisitive fingers from interferring. There are no loose ends to drag on the floor and the possibility of breakage through a fault of the operator is reduced. Maintenance costs are proportionately lowered and "down time" - periods when operation is halted because of broken tape, missing reels, etc. - are seldom encountered.

The new breed of tape players developed to use cartridges reflects the current trend toward compactness. Most units are small and lightweight. They are usually portable (in the true sense of the word) and are easily carried about. By being compact and portable, many new uses can be created for the classroom, home study, and even the bus ride home.

Most units have provision for connecting earphones. With the earphones connected, the built-in speaker is automatically silenced for private, non-disruptive listening.

Cartridge tape machines usually are less expensive than the standard reel-type machine of similar capability. Retail prices are on the average of ½ to 1/3 lower.

Two Cartridge Tape Players

Two cartridge machines particularly well suited for individual student use are the PlayTape and the GE Tape Player (#G3700). Both are playback-only machines. Neither can be used for making recordings, therefore eliminating the possibility of accidentally erasing the pre-recorded material.

Each has a built-in carrying handle. Batteries provide power, with an

optional AC adapter available. Made of molded plastic that is lightweight and durable, they have simplified operating controls.

The PlayTape uses the miniature continuous-loop cartridge. Starting and stopping is accomplished by inserting or removing the cartridge. The controls on the front are for adjusting the volume and selecting one of the two recorded programs. An earphone jack is located on the back panel for "private" listening.

A custom laboratory for producing classroom tapes for the PlayTape machine is maintained by Electronic Associates, 178 W. 15th Street, Holland, Michigan, 49423. This laboratory will produce cartridges from teacher-recordings made on reel-type machines.

A cassette is used in the GE Tape Player. A rocker switch located on the top of the unit is pushed to one side for "play", the other side for "stop". A second control adjusts the volume. Two pre-recorded programs are contained on each cartridge - one on each side. Since the machine can only be operated in the forward direction, you must play to the end of Program I before turning over the cartridge to hear Program II.

Classroom tapes can be recorded by the teacher on a cassette cartridge recorder for playback on the GE Tape Player.

The following list of cartridge players and recorders is not meant to be inclusive. It provides information on a number of the portable units that can be used by students. Further, inclusion in this list does not imply endorsement, nor is anything negative implied due to omission.

Manufacturer and Model		Size	Price	Features
Aiwa	TP707	2½ x 8 x 5 3/4	$49.50	Cassette, player/recorder, push button controls, batteries
Ampex	Micro 20	14 x 3 1/8 x 8½	99.95	Cassette, player/recorder, batteries, AC
Arvin	28L09	7 x 2½ x 10	69.95	Cassette, player/recorder, batteries, AC
Concord	F100	5 x 2½ x 8	100.00	Cassette, player/recorder, batteries, AC adapter
Crown-Corder	CTR9000	4 3/4 x 2 3/8 x 8 9/16	74.95	Cassette, player/recorder, batteries, AC adapter
General Electric	G3700	6 x 4 x 9 2/3	27.95	Cassette, player, batteries, AC adapter
Grundig	C200	6 x 2½ x 9½	79.50	Cassette, player, recorder, batteries, AC optional
Lafayette	RK85	5 x 2½ x 8 3/4	44.95	Cassette, player/recorder, push button, batteries, AC optional
	SR100	2 1/16 x 4 7/16 x 1 3/16	59.95	Cassette, player/recorder, batteries, AC optional
Mercury	8060	4 3/4 x 2 3/8 x 8 3/4	69.95	Cassette, player/recorder, batteries, AC optional
Norelco	150	4½ x 2½ x 7 7/8	64.50	Cassette, player/recorder, batteries, AC optional

PlayTape			15.00 to 30.00	Cartridge, player, batteries, AC optional, many different models but same basic features
Radio Shack	14-851	6½ x 2½ x 8½	69.95	Cassette, player/recorder, batteries, AC
RCA	YJD16	8 3/4 x 2½ x 8½	49.95	Cassette, player/recorder, batteries, AC optional
SCM	Mail Call	4 x 4 x 10½	35.00	Cartridge, player/recorder, batteries
Sony	50	3½ x 1½ x 5½	125.00	Cassette, player/recorder, batteries, AC optional
	100	5½ x 2 3/8 x 9 3/8	99.50	Cassette, player/recorder, batteries, AC
Telefunken	M4001	4½ x 2¼ x 8	69.95	Cassette, player/recorder, batteries, AC
Wollensak	4200	4½ x 2¼ x 7 7/8	74.95	Cassette, player/recorder, batteries, AC optional

* All information as of March 1, 1968. Periodic revisions of this list are available from the Regional Center.

Manufacturer Adresses:

Ampex Corp.
2201 Lunt Avenue
Elk Grove Village, Illinois 60007

Concord Electronics Co.
1935 Armacost Avenue
Los Angeles, California 90025

General Electric Co.
1001 Broad Street
Utica, New York 13501

Lafayette Radio Electronics
111 Jericho Turnpike
Syosset, L.I., N.Y. 11791

Mercury Record Corp.
35 East Wacker Drive
Chicago, Illinois

Norelco
North American Philips Company, Inc.
100 East 42nd Street
New York, New York 10017

PlayTape Inc.
1115 Broadway
New York, N.Y. 10010

Radio Shack
730 Commonwealth Avenue
Boston, Massachusetts 02215

RCA
Front & Cooper Street
Camden, New Jersey 08102

SCM Corp.
410 Park Avenue
New York, N.Y. 10022

Sony Corporation of America
580 Fifth Avenue
New York, N.Y. 10036

Telefunken
48-50 34th Street
Long Island City, New York

Wollensak-3M Company
2501 Hudson Road
St. Paul, Minnesota